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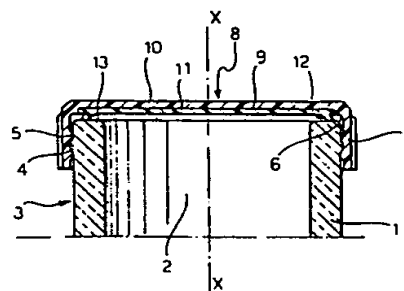
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(54) Lid for sealingly closing a container.

(57) A lid is provided for sealing containers intended mainly for containing foodstuff to be pasteurised or substances which generate a pressure in the container greater than the external pressure.

The lid, constituted by a cap portion (8) moulded from a plastics material which is resistant to mechanical forces, is formed both with a wall (10) extending transversely of the mouth (2) of the container and with a side wall (7) rigid with the transverse wall (10). The cap portion (8) also has a plate-like part (11) of yielding plastics material moulded directly onto the inner surface (9) of the transverse wall (10) of the cap portion (8) so as to form therewith a unitary body without interstices. This avoids the possibility of substances being retained in the lid and deteriorating which could jeopardize the hygienic nature of the product placed in the container, particularly upon re-use of the latter.

FIG. 1



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"Lid for Sealingly Closing a Container"

The present invention relates to a lid for sealingly closing containers in general, of glass or plastics material, particularly of the type with a comparatively large mouth and intended mainly for
5 containing foodstuffs to be pasteurized or substances which generate a pressure within the container greater than the external pressure.

The lid to which the present invention relates is of the cap type made of plastics material resistant
10 to mechanical forces and formed both with a wall arranged to extend transversely across the mouth of the container to be closed and with an annular side wall rigid with the transverse wall, the cap being provided with fastening means for engagement with cooperating means carried by the
15 outer surface of the neck of the container.

According to the known art, the seal between the lid and the mouth of the container is ensured by the presence of a washer of yielding material inserted in the cavity of the lid and optionally accommodated in a
20 suitable groove in the lid top.

It has been found in practice that this type of lid although ensuring a good seal, has serious disadvantages relating to the hygienic conditions in which the product finds itself, especially during
25 subsequent re-use of the container.

Indeed, since the sealing washer is formed as a piece separate from the remaining cap portion of the lid, it is not possible to avoid the penetration of a small quantity of product or other extraneous
30 substances between the washer itself and the underlying transverse wall of the lid with the consequent formation of germs and dirt which eventually results in pollution of the product.

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The object of the present invention is thus to avoid the formation of pollutants which, by coming into contact with the product, could cause it to deteriorate.

5 The problem which is at the root of the present invention is that of forming a lid which, on the one hand can ensure a good seal, both at high and low pressures and, on the other hand, avoids the possibility of pollution of the product
10 placed in the container.

 The problem is resolved in accordance with the present invention, by a lid of the type specified above which is characterised in that the cap portion, formed by moulding from a plastics material resistant
15 to mechanical forces, includes a plate-like portion of yielding plastics material formed by moulding directly onto the inner surface of the transverse wall of the cap which faces towards the mouth of the container, the said yielding plastics material being compatible
20 with that of the cap portion to form a unitary body.

 More particularly, the said material which is resistant to mechanical forces can be a type of propylene polymer, while the yielding material is an ethylene-propylene-type elastomer.

25 According to a preferred aspect of the invention, the plate-like portion of yielding plastics material has a flexible annular lip projecting towards the interior of the cap portion of the lid, the lip being located peripherally in a position opposite the rim
30 of the mouth of the container and being inclined to an axis perpendicular to the transverse wall of the cap portion.

 The invention will now be more fully described with reference to an example of a practical embodiment
35 given purely by way of example, illustrated in the appended drawings in which:

Figure 1 is a cross section of a lid incorporating the invention, for the case in which the interior of the container is at a lower pressure than the external environment;

5 Figure 2 is a cross section of a lid incorporating the invention, for the case in which the interior of the container is at a higher pressure than the external environment.

10 With reference to Figure 1, by 1 is shown the neck of a general type of container, particularly of the type with a mouth 2, which is large relative to the rest of the body, not illustrated.

15 The outer wall 3 of the neck 1 has a conventional screw-thread 4 for engagement by a complimentary screw-thread 5 formed on the inner surface 6 of the side wall 7 of a cap portion indicated in its entirety by 8.

20 This cap portion has, on an internal surface 9 of the transverse wall 10, a plate-like part 11 with an annular lip 12 projecting inwardly of the lid itself.

 This annular lip 12 is located peripherally in a position opposite the rim 13 of the neck 1.

25 The cap portion 8 of the lid, that is to say, the side wall 7, the complimentary screw thread 5 and the transverse wall 10, is moulded from a plastics material, for example a polypropylene polymer, which is resistant to mechanical forces.

30 The plate-like part 11, with its annular lip 12, is on the other hand, moulded from a yielding plastics material, such as an ethylene-propylene elastomer, which is compatible with the propylene polymer used for moulding the cap portion 8.

35 In practice, the formation of the lid according to the invention is carried out by conventional double-moulding methods; one of the two parts is formed first, for example by injection into a suitable mould, and

subsequently the other part is formed directly on the first, the material being changed.

In this manner a lid is formed as a unitary body totally free from any interstices between the surface 9 of the
5 transverse wall 10 and the plate-like part 11.

Consequently the penetration of product or extraneous substance between the wall 10 and part 11 is avoided thereby guaranteeing a completely hygienic closure.

With particular reference to Figure 1,
10 it is seen that the lip 12 is inclined to the axis X-X perpendicular to the transverse wall 10 so that its free edge faces the peripheral wall 7 of the cap portion 8.

This inclination allows the lid to be used
15 in cases in which the interior of the container will be at a lower pressure than the external environment as occurs when the product is pasteurized.

With reference however to Figure 2, in which all the elements corresponding to those of Figure 1
20 have been indicated by the same reference numerals, it is seen that the annular lip 12 is inclined to the axis X-X at an inclination such that the free edge faces inwardly of the cap portion 8.

This conformation is particularly suitable for
25 cases in which the interior of the container will be at a higher pressure than the external environment as occurs when aerated liquids or beverages are contained.

In addition to the basic technical result specified above, the invention further allows the use of coloured
30 plastics material in the formation of the cap portion 8 without danger of contamination of the product placed in the container since the presence of the plate-like part 11 stops any possible migration of the colouring substances to the product.

CLAIMS

1. A lid for sealingly closing a container, said lid comprising a cap portion (8) moulded from plastics material resistant to mechanical forces and formed both with a transverse wall (10) arranged to extend transversely across the mouth (2) of the container and with an annular side wall (7) rigid with the transverse wall (10), the cap portion (8) being provided with fastening means for engagement with cooperating means (4) carried by the external surface (3) of the neck (1) of the container, characterised in that the said cap portion (8) is provided with a plate-like part (11) of yielding plastics material formed by moulding directly on the surface (9) of the said transverse wall (10) which faces the mouth (2) of the container, the said yielding plastics material being compatible with that of the cap portion (8) so as to form a unitary body therewith.

2. A lid according to Claim 1, characterised in that the said plate-like part (11) of yielding plastics material has a flexible annular lip (12) projecting inwardly of the cap portion (8), the said lip (12) being peripherally in a position opposite the rim (13) of the container and being inclined to the transverse wall (10) of the cap portion (8).

3. A lid according to Claims 1 and 2, characterised in that the free edge of the said inclined annular lip (12) faces the internal surface of the side wall (7) of the cap portion (8).

4. A lid according to Claims 1 and 2, characterised in that the free edge of the said inclined annular lip (12) faces the interior of the said cap portion (8) in the direction (X-X) perpendicular to the said transverse wall (10).

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5. A lid according to any one of Claims 1 to 4, characterised in that the said plate-like part (11) is formed by moulding from a plastics material consisting of an ethylene-propylene elastomer.

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FIG. 1

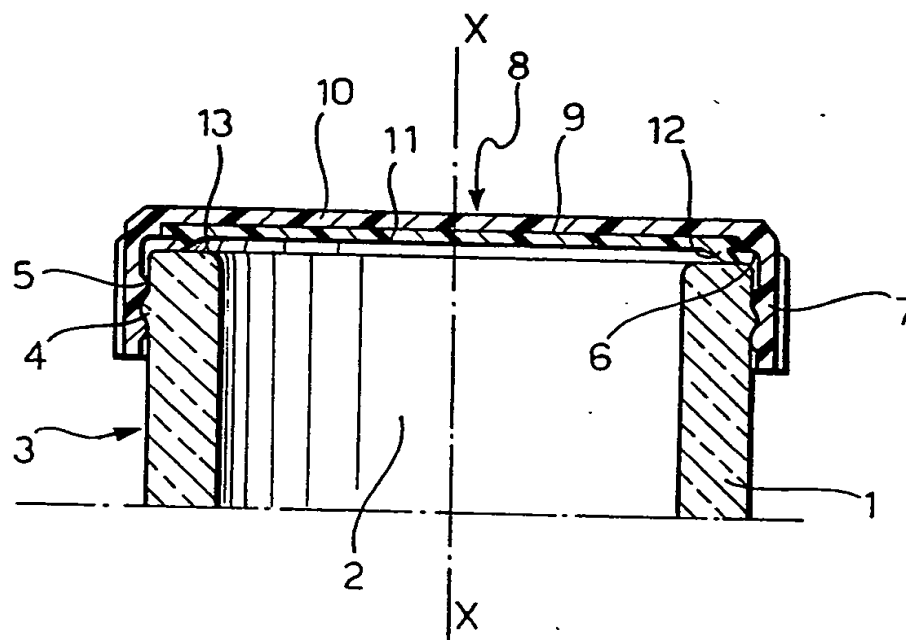
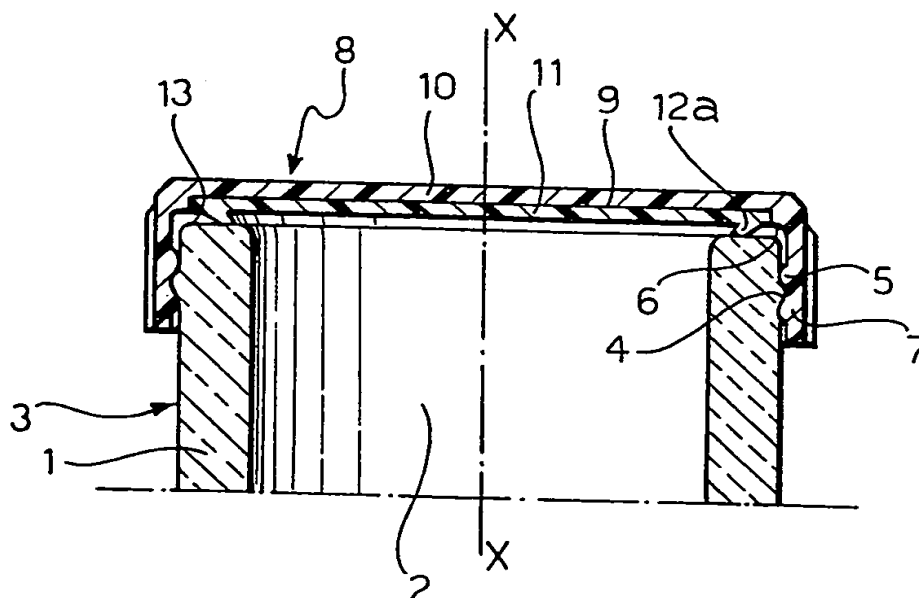


FIG. 2



DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>DE - A - 1 906 003</u> (GRACE) * Fig. 4,5; page 1, lines 5-8, 12-14 *	1,5	B 65 D 41/04
X	<u>DE - B - 1 544 989</u> (GRACE) * Claim; column 3, line 58; column 2, lines 64,65 *	1,5	
	<u>GB - A - 1 369 415</u> (ALUMINUM COMPANY) * Claims 1,2 *	1,5	TECHNICAL FIELDS SEARCHED (Int Cl.)
	<u>DE - A1 - 2 758 208</u> (THE CONTINENTAL GROUP) * Claim 1 * & GB-A-1 592 222	1	B 21 D 51/00 B 65 D 41/00 B 65 D 51/00
	<u>US - A - 3 325 576</u> (KESSLER) * Fig. 2 *	2,4	
	<u>DE - A1 - 2 756 372</u> (OWENS-ILLINOIS) * Fig. 1,2 * & US-A-4 069 937	2,3	CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
X	The present search report has been drawn up for all claims		&: member of the same patent family. corresponding document
Place of search VIENNA		Date of completion of the search 05-02-1982	Examiner CZUBA

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